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ABSTRACT

Previously, analysis of repeated teacher ratings and time-sampling observations of selected social behaviors in young children had provided evidence of clearly delineated dimensionality in interpersonal orientations with substantial behavioral continuity and intra- and interindividual stability. The present investigation was designed to replicate and elaborate upon these earlier findings by making use of ratings of the same behavioral variables obtained from a larger and more heterogeneous group of children with a somewhat greater age range. The sample consisted of 62 boys and 50 girls enrolled in the Purdue Child Development Laboratories from 1968-69 through 1974-75 who met certain age requirements and for whom four consecutive ratings were available. Subjects were independently rated on 24 reliable seven-point scales used in the original study. Usually, the head and assistant teachers independently rated each child each semester. Results confirmed the previous conclusions regarding dimensionality, stability, and continuity in the early patterning of social behavior. (Author/RH)

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The Early Patterning of Social Behavior: Revisited

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The authors are named in order of their contribution to a collaborative enterprise: the first-named designed the study and was responsible for collection of the data; the second-named undertook the analysis of those data. Both authors engaged in interpretation of the results. Special acknowledgement is due members of the staff of the Child Development Laboratories, Purdue University, who served as raters, especially Head Teachers Ruth F. Bogdanoff, Loretta M.Hatfield, Dorothy A. Ports, and Dixie L. Ramsey, and the late Flo G. Kerckhoff, then Director.

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RUNNING HEAD: EARLY PATTERNING OF SOCIAL BEHAVIOR

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Abstract

Analysis of repeated teacher ratings and time-sampling observations of selected social behaviors of young children had previously provided evidence of clearly-delineated dimensionality in interpersonal orientations with substantial behavioral continuity and intra- and inter-individual stability. The present investigation was designed to replicate and elaborate upon those earlier findings with ratings of the same behavioral variables on a larger and more heterogeneous group of children of a somewhat greater age range. The results confirm the previous conclusion of the dimensionality, stability, and continuity in the early patterning of social behavior.

The Early Patterning of Social Behavior: Revisited

Some years ago, the first phase of a longitudinal study (Martin, 1964) addressed itself to the enduring question of constancy and change in psychological development. Among the data were two measures of goal responses of young children in seven major categories (Dependency, Nurturance, Aggression, Control-Dominance, Autonomous Achievement, Avoidance-Withdrawal, and Friendship-Affiliation): one, repeated time samples of behavior, over a two-year period, of children when engaged in "free play" in a nursery school setting; two, repeated teacher ratings over two years of the same children on 34 scales of social behavior, presumably defining the same major response categories. The children were those admitted to the basic program of a university nursery school in four successive years and remaining for at least two years of continuous residence; the total group included 24 girls and 29 boys, with an average age of 3.1 years at time of admission.

Martin (1964) used the observed behavior frequencies in the seven major categories, expressed ipsatively, to define individual patterns that were remarkably stable for most children during the age period from 2 to 5 years, thus demonstrating both singularity and stability in early social orientations.

Emmerich (1964), with the same observation data, but in the form of subcategory frequencies, used factor analytic techniques to investigate the dimensionality, continuity, and stability of early

social behavior; he concluded that "certain basic interpersonal orientations become established early in life and are sustained over time in either their original or transformed forms" (p. 332).

In a second report, Emmerich (1966) undertook a similar analysis of the teacher rating data and again found evidence of salient personality dimensions with "considerable individual stability as well as behavioral continuity" (p. 21).

That there may emerge early in life patterns of social behavior that are demonstrably individual and invariant leads to a host of questions and implications: When and under what circumstances do such singular, stable patterns develop? To what degree do they persist into later childhood, adolescence, and even adulthood? What factors interfere with the emergence and persistence of such individual integrity? What events induce significant mutations? How are those adults assigned responsibility for the rearing and education of children to cope with seemingly stable and steadfast individuality? What parental and teaching strategies can be devised? In the absence of singularity and stability, what, if anything, should be done to nurture their development?

These questions, significant and provocative as they may be, are better laid aside until the existence of early social orientations is confirmed and their singularity, stability, and continuity further explored and delineated, the purpose of the present investigation.

Method

Children

Over a period of six academic years, from 1968-1969 through 1974-1975, all children enrolled in the Purdue Child Development Laboratories--regardless of age, sex, or type of program (whether one, two, three, or five days per week, whether morning or afternoon, whether content-, activity-, or special interest-oriented)--were rated by their teachers at the end of each semester of residence. The total number was 316.

When those were eliminated for whom there were not four consecutive ratings, beginning in the fall semester (numbering 199), and those who were either less than 30 months or more than 42 months of age at time of entrance (numbering 5), there remained 112 children, 62 boys and 50 girls, with complete records.

These were further divided into Younger and Older Groups, 51 children (27 boys and 24 girls) from 30 through 41 months and 61 children (35 boys and 26 girls) from 42 through 53 months, with means of 38 and 45 months, respectively, for both sexes in both groups. This constitutes not only a larger but a more heterogeneous selection of children than in the original study, where there were 29 boys and 24 girls with an entrance age range from 30 to 41 months. There is now a group roughly comparable in size and in age and sex composition to that of the earlier study (Emmerich, 1966); there is a second group with an even larger number of both sexes who entered nursery school one year older

(although the averages differ by only 7 rather than 12 months). The original group was drawn from a more socioeconomically restricted population: All were children from university faculty or business-professional families. The present group includes many children from student families as well as some scholarship children from the community at large. This larger and more heterogeneous group permits a more thorough and robust test of constancy and change in early social orientations.

Ratings and Raters

The seven-point scales were the 24 of the original 34 that Emmerich (1966) found to be reliable in all four semesters and are listed in Table 2. The scales were arranged at random in 20 different orders so that a rater had to assess the behaviors in a different sequence for each child at any time of rating, for the obvious reasons of minimizing order effects and for maximizing rater alertness to the behavior to be rated.

With some rare exceptions, two persons - the head and assistant teachers - independently rated each child each semester. Over the seven years of data collection, 31 members of the teaching staff served as raters at one time or another, 27 females and 4 males. The contributions of these raters varied greatly: One provided ratings for 11 of the 14 semesters, two for eight semesters, and one for six semesters; these were all head teachers. At the other extreme were 10 individuals who were raters for only

two semesters and 12 for only one semester - all graduate teaching assistants.

At the end of each semester, each person who had been designated a rater for a group of children was given a rating sheet for each child, together with a description of the behaviors by formal title and by specific examples. There was no further instruction nor training. Nor was there any reference to the completed ratings at any time during the course of the data collection.

Analysis

In the original Emmerich (1966) study, ratings of children by two different teachers were summed to create scores entering into the four factor analyses of the four semesters' ratings. In the case where only one teacher's ratings were available that teacher's scores were doubled to make them comparable to the others. For the present study with 31 teachers who rated varying numbers of children and not always the same children, there seemed to be no way such simple summations could be arrived at. Instead, each teacher's ratings of a child at any one time were held to be independent of his or her own rating of the same child at another time or of another child (and of all children). Accordingly, the entire set of ratings was made the N (886) for the over-all analyses. The actual lack of independence among any one rater's scores was fully recognized, but under the varying numbers circumstances the only way that appeared feasible to compensate for

lack of independence was to set the level of significance for acceptance of factor structure weights (which were used to identify a factor) at .01. For comparison of Emmerich's factors with Martin's, the Emmerich factor structure coefficients for each item variable for each of four semesters were averaged by converting them to Fisher's z coefficients, averaging z's and reconverting average z's to r's.

Martin's data were taken first in toto and factor analyzed. An iterated principal axis analysis was followed by Varimax and Promax (to match the oblique biquartimin rotations used for Emmerich's factors). The resulting factors (three as determined by the Kaiser-Guttman or almost any other test one could apply; cf. Hakstian, Rogers, and Cattell, 1982, and Zwick and Velicer, 1982) were compared by both logical ("eyeball") and mathematical/statistical means, namely, the Ahmavaara Transformations (Ahmavaara, 1954) and congruence coefficients (Burt, 1948). The logical comparisons were made to safeguard against accepting without question the results of the mathematical comparisons, inasmuch as the latter may produce falsely high coefficients by chance (Korth & Tucker, 1975), especially the congruence coefficient.

For intra-study comparisons, Martin's data were sorted by sex, by age, and by semester of ratings and subjected to the same types of analysis described for the full set of data, i.e., factoring

each subset and comparing sets of factors within each subset by the Ahmavaara and Burt coefficients.[1]

To complete the analyses, replicating Emmerich's procedures, all sets of factors from the four semesters were intercorrelated to obtain what Emmerich called factor stability coefficients. Although we had our reservations about the use of Pearson r's with factor weights, it seemed necessary for full replication to carry out this step.

Results

Dimensionality

When scaled scores for all protocols (N = 886) were factored together, the first three factors accounted for 58 per cent of the total variance. As indicated above, the latent-root-of-one test, as well as the Scree test (Cattell, 1966), drew a clear distinction between the third and fourth factors, both for the full set of data and for all other analyses. For females only (N = 394) factors, the percentage of variance accounted for by three factors was also 58, and for males only (N = 405) 57, for both younger (30-41 months) and for older age (42-53 months) children (N = 481), the three factors in each case yielded 58 per cent of variance accounted for. For the four semesters (N = 214, 224, 224, and 224, respectively) the corresponding variance percentages were 59, 60, 58, and 58.

In the case of the comparison of Emmerich's three factors with Martin's, both mathematical and logical methods reach the same

conclusion: The sets of factors derived from independent samples of children and teacher/raters represent the same dimensions of observed behaviors, at least for the first two factors. Tables 1 and 2 demonstrate this fact clearly. Even for the third factor, Tables 1 and 2 suggest that a very good case could be made for identity of factors (according to either Korth's 1978 method, or Schneewind and Cattell - see Cattell, 1978 - tables). Horn, McArdle, and Mason (1983) have put forth a strong argument for identifying factor patterns from one study to another by the proportion of nonsalient variables in common (at least those in the hyperplanes), a position with which we agree; in the present instance, however, there are such striking resemblances between the two factor structures using salient variables[2] that it seems close to impossible to deny identity when both mathematical and logical comparisons coincide so fully.

Insert Tables 1 and 2 about here

When factoring was done by sex, it was assumed that wider discrepancies between the sets of factors would result on account of the reduced reliabilities from smaller N's and differences between boys and girls. Table 3, as compared with Table 1, indicates that such is probably not the case. Despite the fact that there are different emphases placed on some different

variables from one sex to the other, as can be ascertained from Table 3, there can be little doubt that the ratings of boys and girls generate essentially the same factors.

Of the five highest loadings on Factor 1, four are descriptive of both sexes: they direct, boss, and threaten other children, and they insist on their ideas of how or what to play. Three of the five scales loading most highly on Submissiveness are common to girls and boys: they follow teacher directions, submit to other children when challenged, and avoid rough games or fights.

On Factor 2, four of the five highest loadings on Dependence, but only one of the five highest loadings on Independence, are held in common: they seek teacher help, attention, and recognition, and to be near her/him; they attempt to overcome obstacles.

On the Autonomy-Anti-Social Aggression factor, four of the five highest loadings at each pole characterize both sexes: On the one hand, they attempt to overcome obstacles, complete activity, get satisfaction from work, and follow teacher directions. On the other hand, they both destroy or damage property of other children, threaten and derogate teachers, and derogate other children.

However, the differences obtaining between the sexes are instructive. Factor 1 for females is clearly the same factor as for males, but the heavier weights for the former relate to dominance and the lower (still significant) weights to aggressiveness, while the heavier weights for the latter include dominance variables intermingled with aggressiveness variables.

Also, on Factor 1 the low-scoring girl submits to other children and withdraws from conflict, but the low-scoring boy submits to the teacher as well. Both sexes produce (or their ratings by teachers produce) the factor which Emmerich called "Autonomy" but which even in his version involved compliance with the teacher's directions. In the present version, and to some extent in Emmerich's, the opposite pole reflects several forms of aggressiveness; for boys the aggression is directed toward property and teachers, but for girls other children are also objects of both verbal and physical attacks. What is relatively lacking for girls who are strongly characterized by high scores on Factor 1 is found in Factor 3.

With somewhat less assurance than for the sexes, the same factors can be said to be found in younger (30-41 months) and older (42-53 months) children. Table 3 (the lower portion) suggests that one factor, numbered 1 and 3 respectively in the congruence coefficient matrix and 2 and 1 in the Ahmavaara matrix,[3] is a rather poor match from one age to the other. However, visual comparison reveals that at one end of this bipolar factor the older youngsters who score high on this factor are only aggressive toward property and teachers while the younger set include also aggression toward other children. On the other hand, at the opposite pole of the factor the low-scoring younger child manifests a rather passive submissiveness while the low-scoring older child

manifests the "Autonomy" of Emmerich's third factor. The over-all age comparisons, therefore, indicate that two factors are essentially identical, but that the third factor reveals age differences even though the factor is most likely the same one in both cases.

Insert Table 3 about here

More specifically, there is marked age congruity only on Submissiveness and Dependency: For the former, there are four behaviors in common among the five highest loadings (follows teacher directions, completes an activity, withdraws from rough games or fights, and submits to other children when challenged). For the latter, the five highest loadings are common to the two age groups (seeking nearness to teacher, contact with teacher, teacher attention, help, and recognition).

Stability and Continuity

Table 4 portrays the fact that there is a substantial similarity from semester to semester for at least two factors. (These may be in different orders in the coefficient tables for the different semesters.) Where discrepancies occur, they tend to be between the first three semesters and semester four.

In all four semesters, three of the five highest loadings on Aggression-Dominance and three of the five highest loadings on Submissiveness are identical: bossing and directing other children

and insisting on one's idea of how/what to play; submitting to other children when challenged, avoiding rough games or fights, and following teacher directions.

On Factor 2, there was evidence of commonality over time only on the Dependence pole: Children persisted in seeking teacher nearness, help, attention, and recognition.

In the case of Autonomy-Anti-Social Aggression, there is marked stability and continuity: Of the five highest loadings on Autonomy, three were the same for all four semesters: getting satisfaction from one's own work, completing an activity, and following teacher directions; and, for the first three semesters, attempting to overcome obstacles in the environment. Three of the five highest loading scales appeared at the opposite pole over the two-year period: destroying or damaging another child's property, threatening and derogating teacher.

Insert Table 4 about here

Although the results emphasize stability and continuity, there is sufficient dissonance to admit to the existence of some degree of individual instability and behavioral discontinuity. But the Pearson r among the factors from the different semesters gave no clear picture at all of the relations among the sets of factors, a result in keeping with our misgivings about the use of the

Pearson with factor weights. Nor do the teacher rating data permit a determination of the intra-individual stability that Martin (1964) reported, using behavior frequencies.

Another table comparable to Table 2 was constructed to show the entire range of item-by-item comparisons for sex, age, and semesters. The authors will be glad to supply a copy of this table to interested parties; but it is too cumbersome to include here.

Discussion

With both logical and mathematical comparisons agreeing, this replication and extension of Emmerich's longitudinal study appears to generate at least two factors essentially the same as his. Since the Ahmavaara (Table 1) and logical (Table 2) comparisons coincide even for the third factor (and the Ahmavaara is sounder than Burt's procedure which does not show such congruence), it is reasonable to conclude that all three of Emmerich's factors have been replicated in an independent sample. Various adaptations of these factors are likewise found in the data sorted from several perspectives, by sex, age, and semester of rating.

From a modern personological standpoint a serious question has to be raised about these results: Could they come from a shared "implicit personality theory," fulfilling the raters' expectations of what children ought to be like, rather than reflecting what children actually are? Considering the rather abstract nature of several of the item variables, one can easily see that both Emmerich's raters (number not reported) and the 31 raters of the

present study could be seeing children through their expectancy lenses ("Girls are more mature than boys," "Boys are more aggressive than girls," "Younger children are more dependent than older ones," etc., or, more specifically, what behavioral criteria did teachers use to determine "Gets satisfaction from his work," "Attempts to overcome obstacles in environment," "Seeks teacher recognition"?).

After all, some kind of halo effect could result in aggressiveness and dependency factors because teachers (and parents and grandparents) can make global judgments about a child and fit specific descriptions to their preconceived notions about what goes with what. Or could they in this case? Yes, in respect to the relatively abstract item variables named above and several others, they could. But consider these items which have clear behavioral referents even though they themselves are two steps removed from actual behavior: "Insists his idea of how/what to play be accepted," "Asks special privileges of teacher," and some others like these. And then, there are other items which can be called "first-order judgments": "Destroys or damages property of another child," "Stays out of or leaves rough games or fights," "Attacks other children physically," and again some others of the same level of perceptual judgment. There appear to be enough of these latter two types of items by which, if the raters are not completely bound by preconceptions, they could describe youngsters truly

differentially. One cannot dismiss the "implicit personality theory" explanations out of hand. Nevertheless, it is difficult to maintain this explanation when as much of the instrument is behaviorally oriented as it is, and the evidence for the validity (describing what is "there") of behavioral inventories is quite substantial (Dreger, 1981, 1982). At least, for the two factors, roughly "Aggression-Dominance vs. Submissiveness" and "Dependency vs. Independency," it seems safe to say that they are "for real" even when yielded on measures of Emmerich's small N's.

Another troublesome question has to be considered in respect to the production of factors: Could not the factors result from the fact that the measures were not independent one from another? Each child received eight sets of ratings, two for each semester for two years; these surely could not be independent measures. Further, of the 31 teachers/raters in the present study, one rated as many as 163 times and another 109 times. Since to eliminate the first source of dependence, that pertaining to the children themselves, would virtually obviate finding any stability across semesters, no attempt was made to do away with it. However, to reduce the index correlation built into having the same raters providing a large proportion (60 per cent) of ratings, the six who contributed five per cent or more of the ratings were eliminated from the data used for the factor analysis of total ratings, leaving 354 sets of ratings, with an average of 13.6 (median 12.5) apiece. When the factor analysis was run on the 354 sets of

ratings, and Ahmavaara's Transformation performed between the original and truncated set of factors, the results look very much like those originally obtained. (Cf. Tables 1 and 5.) That is, the relation between the full data and truncated data factors is approximately the same as between Emmerich's and Martin's factors. Apparently, then, the teacher/raters who contributed most heavily to the ratings did not contribute proportionately to the statistical dependence among separate sets of ratings. Once more, although one cannot reject dependence of measures as an explanation for the production of factors, the fact that both with and without the heavy contributors the same factors are generated speaks for a reality to the factors despite dependence of measures.

Insert Table 5 about here

In the light of the evidence presented here it is reasonable to conclude that Emmerich's (1966) factors have been substantially replicated and that they are found, again substantially, in the ratings of both boys and girls, of older and younger children (in the range of 30-53 months), and that they tend to remain somewhat stable across a two-year period.

Are the factors revealed in the separate samples of the studies here comparable to those reported by others with somewhat similar inventories? We have not made the same explicit

comparisons of our factors with those of others we have made among the factors here. But one of us (Dreger, 1981, 1982) is quite conversant with the field of behavior inventories and has brought together the results of his studies to determine by logical comparisons what similarity he can find between the Emmerich-Martin factors (E-M) and those of others.

The first preliminary observation one must make in undertaking a comparison of this sort is that most behavior inventories have been constructed for the school age child. However, if we make our comparisons with those which are intended to overlap the age range here, there should be evidence of comparability if it exists. A second observation is that with a relatively few item variables (as contrasted with hundreds in some inventories) the Purdue ratings scales would be expected to produce fewer factors than some others. And finally, a third preliminary observation is that most inventories are meant to assess abnormal behaviors, so that when they generate deeply neurotic or psychotic factors we should expect no comparability with the factors here, though there should be similarities for normal and abnormal children otherwise, as Macfarlane found years ago (Macfarlane, Allen, and Honzik, 1954).

Baker and Dreger's (1973, 1977) 26 factors include three aggression factors, one of which, Direct Aggression, contains the elements of the E-M Factor 1 and the negative pole of Factor 3; but there is no immediate parallel to Factor 2. Ball's (1977) Factor 4 (developed with a number of others from the Gesell Schedules) which

she labelled "Psychomotor Control" contains items that indicate the same "I'll do it myself" quality of the negative pole of the E-M Factor 2. Becker's (1960) factors derived from both parents' and teachers' ratings include two aggression factors which appear to be similar to the E-M Factor 1 and Factor 3 (the negative pole). His Submission factor is like the negative pole of E-M Factor 1. Behar's Preschool Behavior Questionnaire (Behar, 1977; Behar and Stringfield, 1974) generated three factors, the first of which clearly represents E-M Factor 1 ("Destroys own or others' belongings," "Bullies other children," "Kicks, bites, hits other children"), but no match obtains between the two sets of factors otherwise.

One of the most persevering in holding to the two-factor model (Conduct Problem and Personality Problem, Peterson, 1961, and Kohn and Rosman, 1973, 1974), Kohn has worked with two "social-emotional" factors, the first of which appears to match the E-M Autonomy factor and the other one the E-M Factor 2 (with reversed polarity). Another system of factors, which starting out with only the two Peterson (1961) factors for school age children developed four factors (Quay, 1979) based on the Behavior Problem Checklist, has been extended to the preschool by O'Donnell and Van Tuinan (1978). Of the six factors they found, their Factor I matches the E-M Factor 1 and the negative pole of Factor 3. Their Factor IV is fairly close to the E-M Factor 2. None of the other first-order

factors appears to match the E-M factors, but the O'Donnell-Van Tuinan second-order factors could be considered to draw all three E-M factors into themselves, constituting essentially Conduct Problem and Personality Problem factors.

Sines and his colleagues (Sines, Pauker, Sines, and Owen, 1969) generated six factors from the Missouri Children's Behavior Checklist, two of which seem to be very much like the first two E-M factors: Aggression ("Fights," "Pulls other children's hair, punches, steps on toes, etc., annoys children," "Destroys or defaces property") for Factor 2; and Somatization ("Clings to mother...," "Cries at separation from mother...") for Factor 2.

Among those whose research has led them to considerably more than two factors, Stott (1962) found 14 factors (for 4-year-olds) which include an Isolate Egocentricity factor similar to Factor 1 here, but its opposite pole suggests positive social orientation rather than submissiveness. Stott's Independence vs. Dependence factor describes essentially the same behaviors as the same-named E-M factor. His Social Dominance factor incorporates the same dominance of others that Factor 1 here describes. Finally, Stott's Self-Reliance factor and E-M Factor 3 show some similarities.

Altogether, with its limited number of items Emmerich's factors, replicated by this study, prove to be comparable to those of other investigators, almost certainly being the same as far as the first two are concerned and less certainly as far as Factor 3 is concerned.

Footnotes

[1]From extensive usage of both types of coefficients we favor Ahmavaara's over Burt's which is not as sound theoretically as the former's. Burt's takes each set of axes in its own space and performs an operation comparable to correlation between the two sets of factor weights, which means that if the two sets are not in the same rank order, the "correlations" are accordingly reduced despite the obvious similarity of the factors as judged by experts in the subject area who examine the contents of the identifying variables. On the other hand, the Ahmavaara places both sets of axes in the same hyperspace, transforming axes to bring them as close together as possible, then "correlates" them.

Empirically, the Ahmavaara has tracked similarities in known paired axes better than has Burt's method, as appears to be the case in this study.

[2]The two sets of comparison coefficients, Table 1, do not recognize the full similarity in that only seven of the 72 pairs of weights are different in sign, one for Factor 2, three for Factor 2, and four for Factor 3. And these are all associated with nonsignificant weights. It should be noted that like the multitrait-multimethod matrix the coefficient matrices here provide a measure of both convergent and discriminant validity.

[3]In this case and several others the computer produced the same factor but in different order from its matching factor in the other set.

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Table 1

Comparisons of Martin's and Emmerich's Factors - All Children

Martin's Factors [a]	Emmerich's Factors		
	1	2	3
Congruence Coefficients			
1. Aggression-Dominance vs. Submissiveness	.98	.07	.00
2. Dependency vs. Independency	.05	.98	-.27
3. Autonomy vs. Anti-social Aggressiveness	-.63	.08	.79
Ahmavaara Transformations[b]			
1. Aggression-Dominance vs. Submissiveness	.94	.02	-.35
2. Dependency vs. Independency	.10	.99	.06
3. Autonomy vs. Anti-social Aggressiveness	.23	-.15	.96

[a] Names of factors correspond to Emmerich's but add the bipolar aspect found in both positive and negative weights.

[b] The Ahmavaara provides a check on adequacy of transformations. In every case here and in Tables 3, 4, and 5, the degree of adequacy of the transformation is from fairly high to very high.

Table 2

Structure of Martin's and Emmerich's Factors [a]

Item[b]	1		2		3	
	M[c]	E[c]	M	E	M	E
1. Seeks Teacher Help	(-.06)	(-.11)	.74	.60	-.13	-.49
2. Gets Satisfaction from his Work	(.03)	(-.08)	(-.07)	(.00)	.69	.84
3. Insists his Idea of How/What to Play be Accepted	.82	.77	.14	(.15)	-.13	(.00)
4. Asks Special Privileges from Teacher	.40	.45	.62	.68	-.23	(-.15)
5. Threatens other Children	.84	.90	(.01)	(-.03)	-.44	(-.17)
6. Destroys or Damages Property of Other Child	.64	.73	(-.01)	(-.08)	-.58	-.36
7. Seeks Physical Contact with Teacher	(-.08)	(-.24)	.71	.87	(-.03)	(-.04)
8. Directs Other Children	.84	.80	.13	(.01)	(.06)	.34
9. Stays out of or Leaves Rough Games or Fights	-.61	-.71	.23	(.25)	.26	(-.01)
10. Asks Teacher to Do Suggested Activity	(.05)	(.09)	.68	.67	-.27	-.47

Table 2 (con't.)

11. Derogates Other Children	.75	.86	(.08)	(.07)	-.44	(-.09)
12. Attacks Other Children Physically	.73	.80	-.13	(-.10)	-.44	(-.29)
13. Seeks Teacher Attention	.20	(.11)	.75	.84	(-.07)	(-.01)
14. Attempts to Overcome Obstacles in Environment	.36	(.07)	-.28	(-.13)	.39	.78
15. Bosses Other Children	.85	.86	.13	(.04)	-.10	(.15)
16. Submits to Other Children when Challenged	-.69	-.71	.19	(.13)	(.03)	(-.16)
17. Seeks Recognition of Other Children	.51	.54	.27	(.33)	.09	(.21)
18. Dominates Another Child (or children)	.71	.70	(.07)	(.02)	(.00)	(.25)
19. Follows Teacher Directions	-.47	-.64	(-.00)	(.07)	.62	.43
20. Seeks to be Near Teacher	-.16	(-.29)	.79	.84	(.04)	(-.04)
21. Completes an Activity	-.10	(-.17)	-.11	(-.02)	.70	.89
22. Treatens Teacher	.60	.79	(.03)	(.08)	-.55	(-.12)
23. Derogates Teacher	.58	.73	(.04)	(.05)	-.54	(-.09)

Table 2 (con't.)

24. Seeks Teacher Recognition	.16	(.14)	.75	.82	.15	(.11)

[a] For Martin, N = 886, r(.01)=.089; for Emmerich, N=53, r(.01)=.34. Weights below .01 levels are included in parentheses for comparative purposes.

[b] Items were administered in several different orders.

[c] M = Martin; E = Emmerich; entries are averages for four semesters.

Table 3

Comparisons of Martin's Factors by Sex and Age

	Sex		
	Male Factors		
	Congruence Coefficients		
Female Factors	1	2	3
1	.96	.18	-.10[a]
2	.13	.98	-.31
3	.75	.20	-.86
	Ahmavaara Transformations		
1	.93	.10	.34
2	.01	.99	-.13
3	.47	-.03	-.88
	Age		
	Older Factors[b]		
	Congruence Coefficients		
Younger Factors	1	2	3
2[c]	.95	.21	-.08
3	-.02	.91	-.23
1	.86	.18	-.72

Table 3 (con't.)

	Ahmavaara Transformations		
2[c]	.77	.36	.53
3	.19	.97	-.13
1	.41	-.07	-.91

[a] One can ignore signs here.

[b] Younger = 30-41 months; Older = 42-53 months.

[c] Order re-arranged to bring largest coefficients into diagonal.

Table 4

Comparisons of Martin's Factors by Semesters

Semester 1 Factors	Semester 2 Factors		
	Congruence Coefficients		
	1	2	3
1	.98	.09	-.05
2	-.01	.98	-.17
3	-.51	.06	.83
	Ahmavaara Transformations		
1	.98	.11	.18
2	.10	.97	-.21
3	-.31	-.02	.95
Semester 1 Factors	Semester 3 Factors		
	Congruence Coefficients		
1	.97	.10	-.40
2	.12	.97	-.08
3	-.40	.06	.90
	Ahmavaara Transformations		
1	.99	.12	-.05
2	.26	.95	-.19
3	-.11	.01	.99

Table 4 (con't.)

Semester 1 Factors	Semester 4 Factors		
	Congruence Coefficients		
	1	2	3
1[a]	.97	.78	-.05
3	-.24	-.78	-.02
2	.04	.07	.96
	Ahmavaara Transformations		
1[a]	.88	.47	-.04
3	.23	-.94	-.24
2	.10	.21	.97
Semester 2 Factors	Semester 3 Factors		
	Congruence Coefficients		
1	.98	.16	-.57
2	.26	.98	-.15
3	-.16	-.21	.91
	Ahmavaara Transformations		
1	.97	.02	-.25
2	.21	.98	.06
3	.17	-.03	.99

Table 4 (con't.)

Semester 2 Factors	Semester 4 Factors		
	Congruence Coefficients		
1[a]	.94	.89	.04
3	.05	-.64	-.36
2	.19	.19	.96
	Ahmavaara Transformations		
1[a]	.79	.60	-.10
3	.54	-.77	-.34
2	.13	-.01	.99
Semester 3 Factors	Semester 4 Factors		
	Congruence Coefficients		
1[a]	.97	.83	.15
3	-.29	-.87	-.27
2	.20	.22	.96
	Ahmavaara Transformations		
1[a]	.89	.43	-.16
3	.36	-.90	-.26
2	-.07	-.05	.99

[a] Order re-arranged to bring largest (or nearly largest) into diagonal.

[b] One can ignore sign here.

Table 5

Ahmavaara Comparisons of Martin's Factors Derived from Full Data Set and Those from Truncated Data Set

Full Data Factors	Truncated Data Factors		
	1	2	3
1	.97	.03	.25
2	-.01	.99	-.03
3	-.25	.05	.97